

### **REMARKS**

This is in response to the Office Action dated March 27, 2006. Claims 12 and 14-19 are pending.

#### **Formalities**

In section 1 of the Office Action, the square symbol stands objected to. This formality objection is respectfully traversed. In particular, the square symbol means square. Sheet resistance is measured in units of ohms/square, and this is well known to those of skill in the art. Those of ordinary skill in the art typically use " $\Omega/\square$ " as a representation of ohms/square. The instant specification does this in accordance with the ordinary usage. Moreover, *the instant specification at page 3, line 7, clearly states that  $\square$  means square* as is known in the art. As another example, U.S. Patent No. 5,422,299 at col. 25, lines 15-16, shows that those of skill in the art know that " $\Omega/\square$ " is a unit of sheet resistance and means ohms/square. In views of the above, it is clear that " $\Omega/\square$ " is a unit of sheet resistance meaning ohms/square, and that the formality objection to the specification should be withdrawn.

#### **Art Rejection**

Claim 12 stands rejected under 35 U.S.C. Section 103(a) as being allegedly unpatentable over Oda in view of Ellis. This Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 12 as amended requires forming a film on (directly or indirectly) a substrate continuously in an open system by chemical vapor deposition under atmospheric pressure. E.g., see pg. 22, lines 7-10, and Figs. 3-6. Thus, claim 12 calls for an apparatus for forming a film (1) continuously, (2) in an open system, (3) by a CVD technique, and (4) under atmospheric

pressure. Moreover, the invention of claim 12 has a means for pre-heating a substrate and a means for conveying.

First, Oda in Figs. 1-11 discloses a substrate on which a film is formed, where the substrate is fixed. Thus, Oda does not relate to a system or apparatus that forms a film "continuously" as required by claim 12.

Second, Oda relates to a closed system (not an "open" system as required by claim 12). In particular, Oda in Figs. 1-11 does not have an opening other than a material gas supply port and a material gas discharge port, thereby evidencing that Oda relates to a closed system (the opposite of the "open" system of claim 12). With the closed system apparatus of Oda, the film quality is not affected by change in an atmosphere surrounding the apparatus. On the other hand, the apparatus of claim 12 and Ellis have openings in a substrate introduction port and a substrate ejection port other than a material gas supply port and discharge port, thereby relating to an open system. In an open-system apparatus, a material gas is diluted because the material gas is mixed with an atmosphere surrounding the apparatus before it reaches the substrate. The film quality changes if the composition of the atmosphere changes. To suppress this problem with open systems, claim 12 requires means for positioning a bottom end of a discharge port of a former dispersion head closer to a surface of the substrate than is a bottom end of a discharge port of a latter dispersion head.

In other words, Oda relates to a closed-system, non-continuous film-forming apparatus, whereas claim 12 relates to an open system, continuous film-forming apparatus. With the open system apparatus, the composition, flow rate and the like of a material gas needs to be controlled in views of the effect of the atmosphere, while with the closed system of Oda there is no need for controlling a material gas as it is not affected by the atmosphere. Thus, there is no reason

why one of ordinary skill in the art would have ever modified the system of Oda to meet the invention of claim 12. There is clearly no suggestion or motivation for such a modification, and hindsight is not permitted.

Third, claim 12 requires means for pre-heating the substrate. Oda and Ellis fail to disclose or suggest this feature of claim 12, as they have no means for pre-heating a substrate before or during the film formation.

On page 4, last 4 lines, of the Office Action, the Examiner contends that “chemical vapor deposition under atmospheric pressure” is an intended use and is not limiting on the claimed structure. However, claim 12 in the preamble makes clear that the apparatus is an “open system continuous atmospheric pressure CVD apparatus” which is a structure limitation. The last 2 lines of claim 12 make clear that the claim is directed toward an open system using chemical vapor deposition under atmospheric pressure, as stated in the preamble. Thus, these limitation should be accorded patentable weight and should not be ignored as alleged in the Office Action. The Office Action’s ignoring of these limitations is a fundamental flaw in the Section 103(a) rejection of claim 12.

Furthermore, on page 5 of the Office Action, the Examiner contends that “*means for pre-heating*” in claim 12 is an intended use and is not entitled to patentable weight. However, the claimed “means for pre-heating” in claim 12 is in means-plus-function form pursuant to 35 U.S.C. Section 112, paragraph 6, and must be considered as a positively recited limitation. This cannot be an intended use. The claim patentable defines over the cited art in this regard as well. Again, the Office Action’s ignoring of this means-plus-function limitation is yet another fundamental flaw in the Section 103(a) rejection of claim 12.

For each of the above reasons, it is respectfully requested that the art rejection of claim 12 be withdrawn.

New claim 16 requires "means for a second pre-heating of the heated substrate *after* the film is deposited." E.g., see reference numeral 2 in Figs. 3 and 6. Oda and Ellis fail to disclose or suggest this feature of claim 16. Thus, it is respectfully submitted that claim 16 also patentably defines over the cited art.

All rejections should be withdrawn. All claims are in condition for allowance. If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

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